



External Antenna USB Adapter

WLAN-LCUSB-01

User Manual

(For 802.11b/g Wireless Networks)

Revision: B / Date: 11/11

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Overview

Product Introduction

Thank you for purchasing the WLAN-LCUSB-01.

This adapter is designed to provide a high-speed and unrivaled wireless performance for your PC. With a faster wireless connection, you can get a better Internet service, such as downloading, gaming, video streaming and so on.

The WLAN-LCUSB-01 supports IEEE 802.11b/g 2.4GHz radio operation. With auto-sensing capability, the adapter packet transfer rate is up to 54 Mbps. Additionally, the WLAN-LCUSB-01 has good capability in anti-jamming and supports WEP, TKIP, AES, WPA, and WPA2 encryption, which prevents outside intrusion, protecting your personal information from being exposed. Featuring high-performance transmission rate, simple installation and adaptability, as well as strong security, the WLAN-LCUSB-01 is the perfect solution for small office and home needs.

System Requirements

Recommended system requirements are as follows:

- Windows 2000, Windows XP 32-Bit, Windows Vista 32-Bit and Windows 7 32-Bit
- Standard USB 2.0 port
- 32MB system memory or larger
- 300MHz processor or higher

Packing List

The packing list of the WLAN-LCUSB-01 contains the following items:

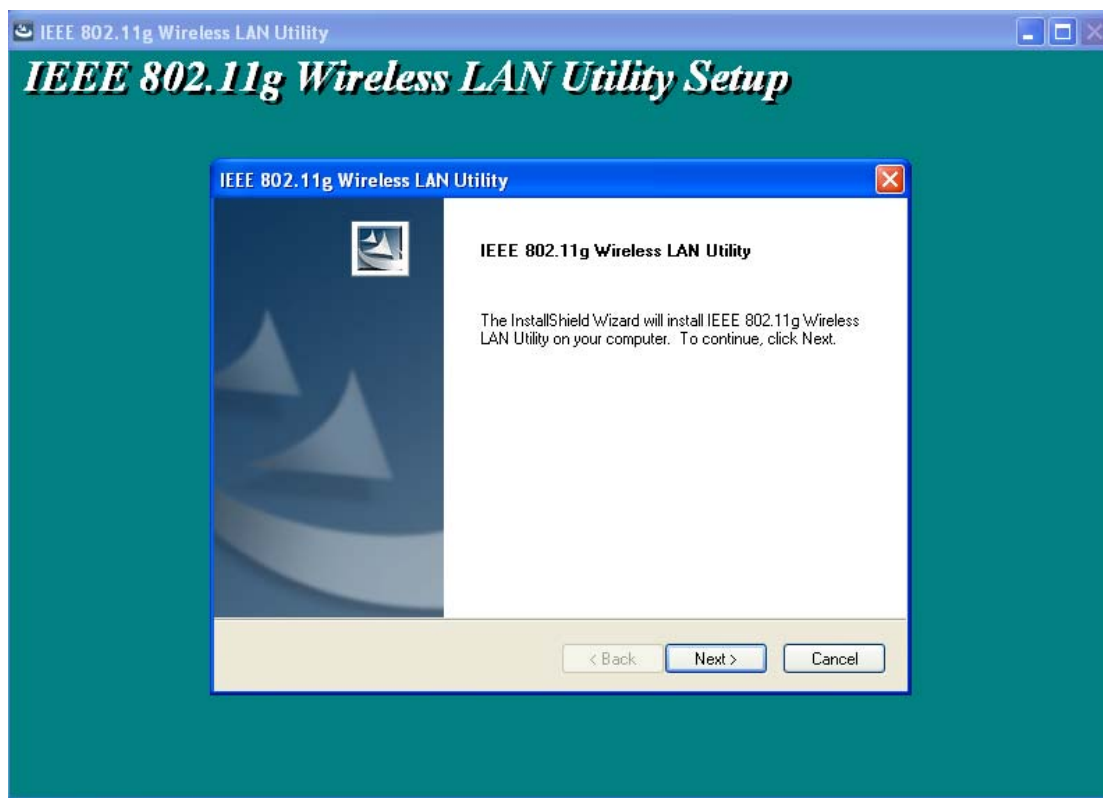
- 1x WLAN-LCUSB-01
- 1 x CD (contain user manual)
- 1X Antenna

Installation

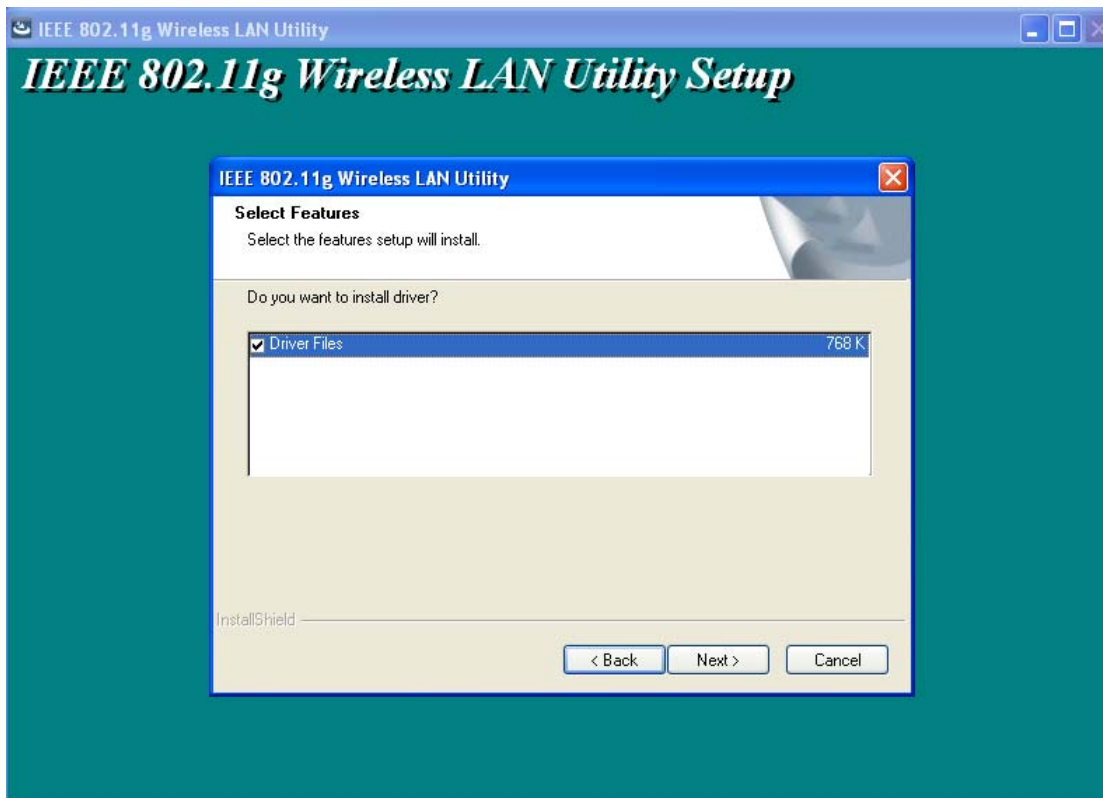
This chapter describes how to install the driver and utility of the WLAN-LCUSB-01. The following procedure is illustrated in Windows XP.

Installation Guide

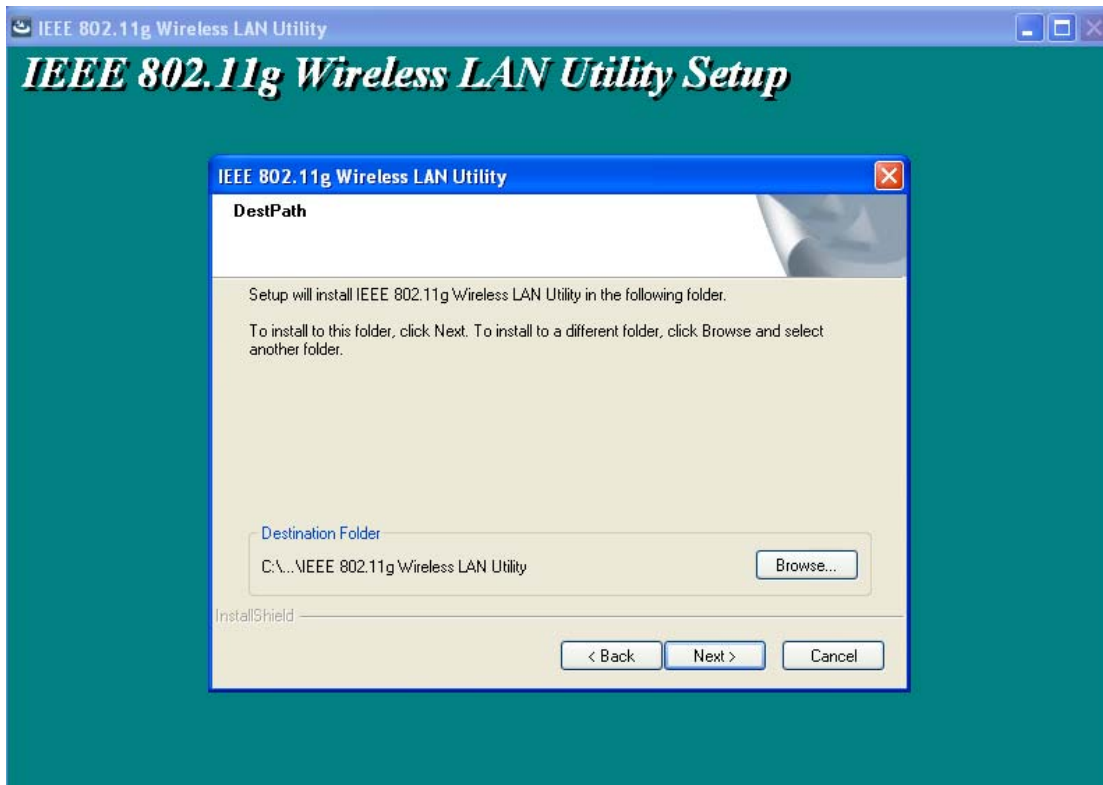
Step 1 Find the setup file named **WLAN-LCUSB-01 .exe** on the included CD and then double-click on it to start the installation. The page shown in the following figure appears. Then click "**Next**" to continue.



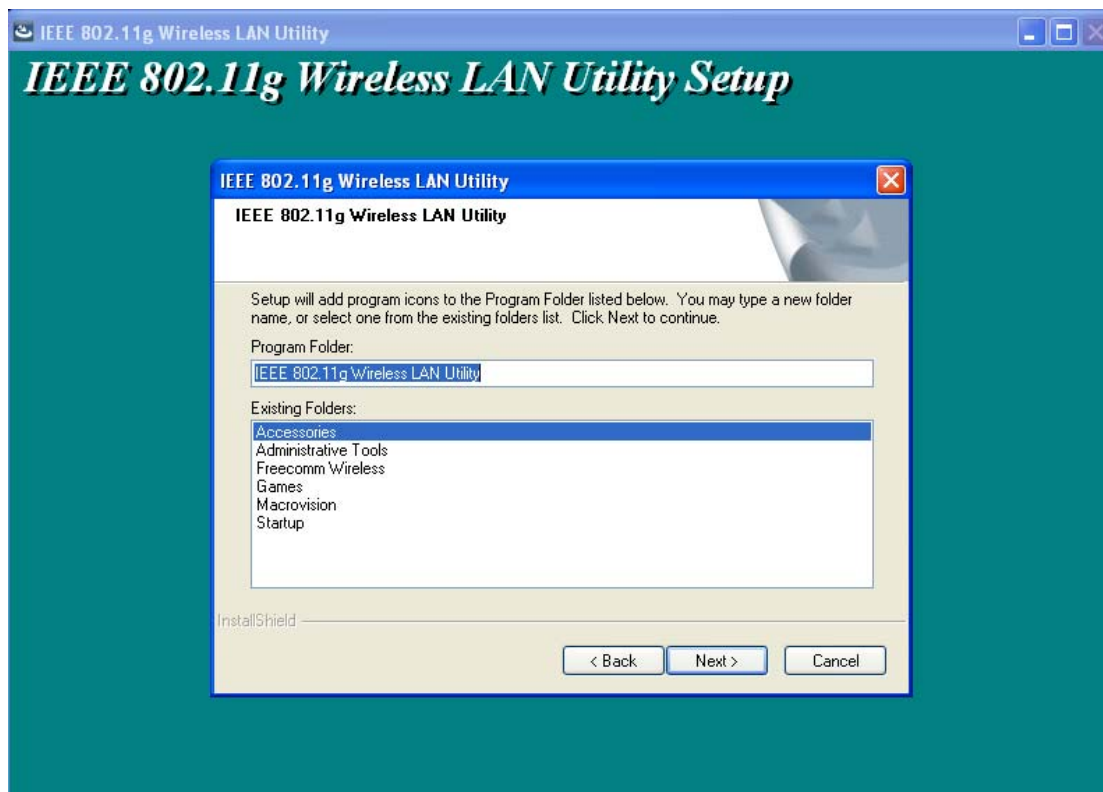
Be sure "Driver Files" are checked and click "**Next**" to continue.



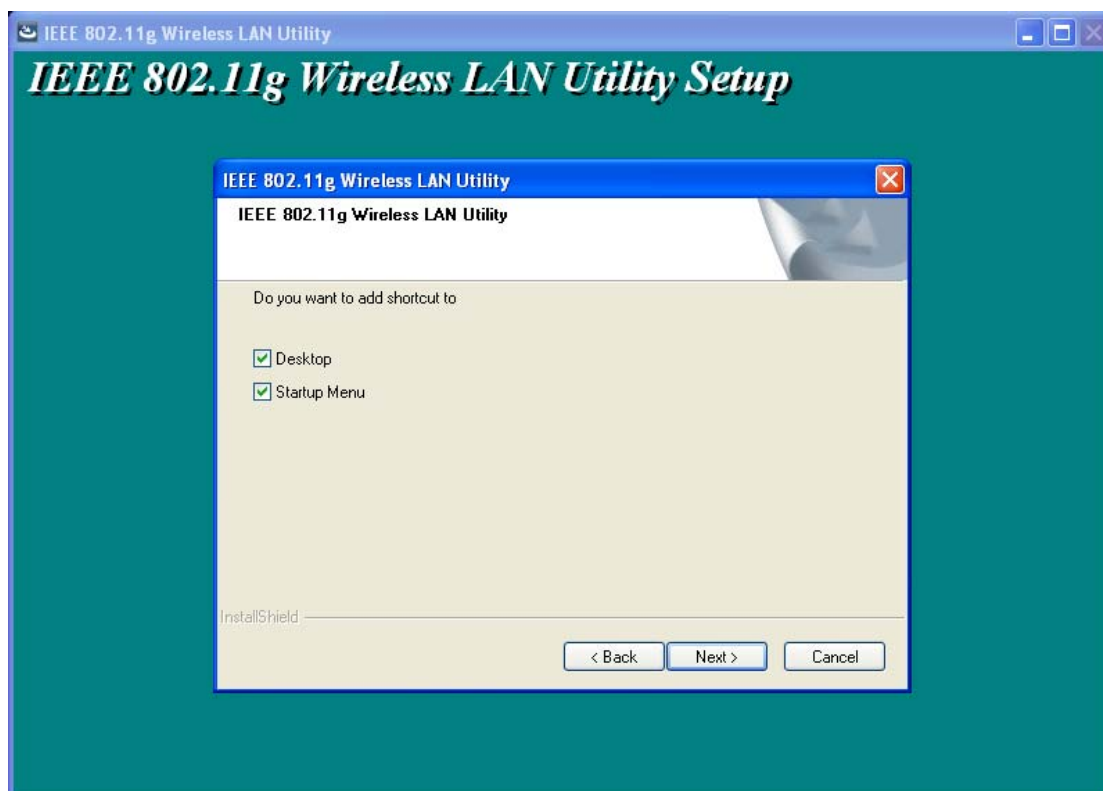
Step 2 Select a destination folder for installation files. Then click "**Next**" to continue.



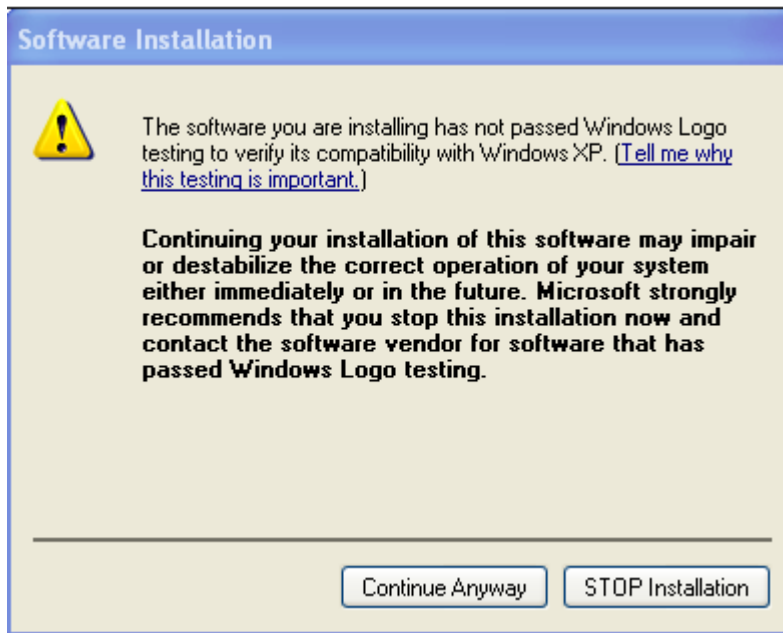
Step 3 Click “Next” to continue.



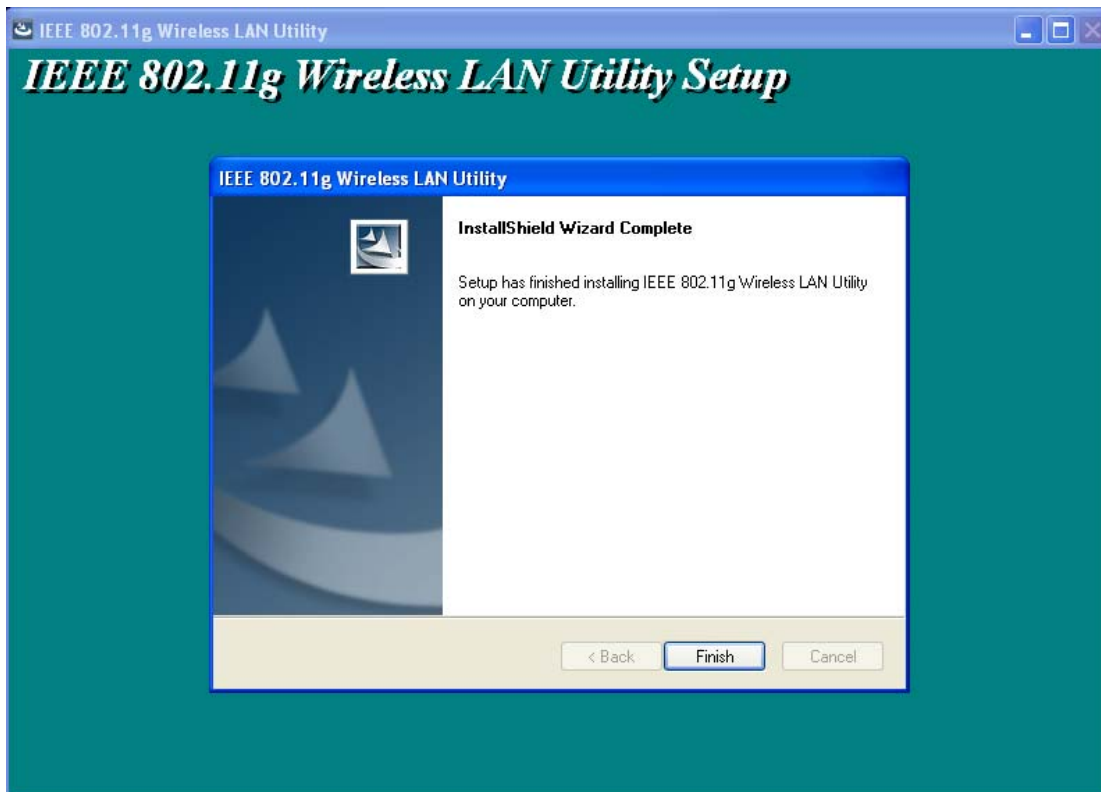
Step 4 Click “Next” to continue.



Step 5 The following warning will appear. Click the “**Continue Anyway**” button to continue the installation.

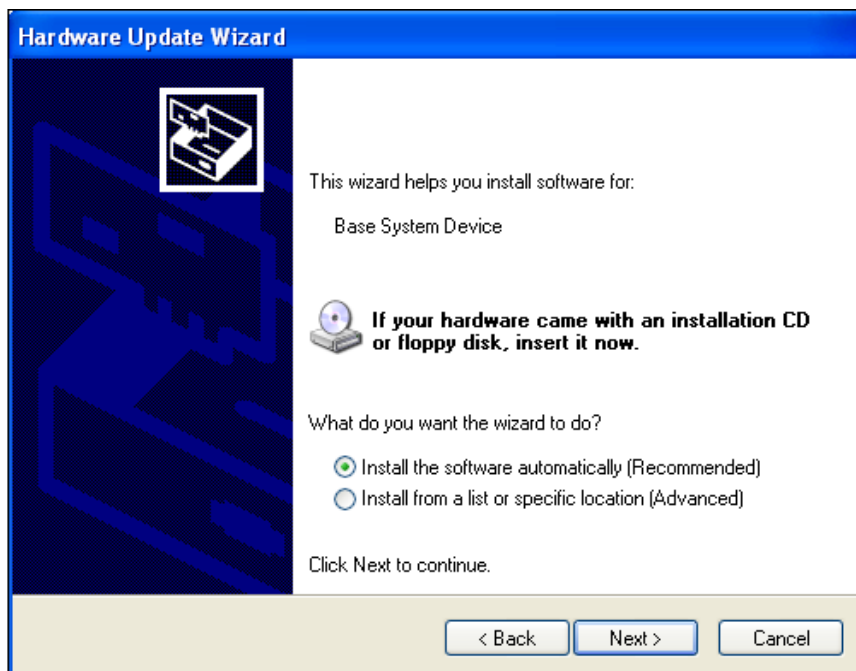


Step 6 After the installation has been completed, click “**Finish**” to exit the setup wizard.

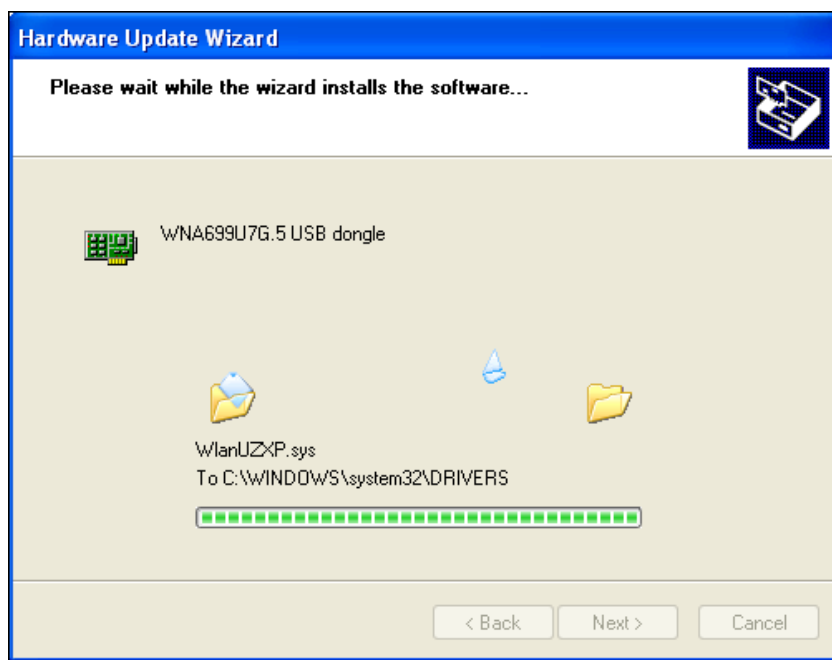


Step 7 Driver Installation

Step 8.1 After step 7, plug the USB adapter into any open USB slot on computer. The page shown in the following figure appears within seconds. Select **"Install the software automatically"** and click **"Next"** to continue.



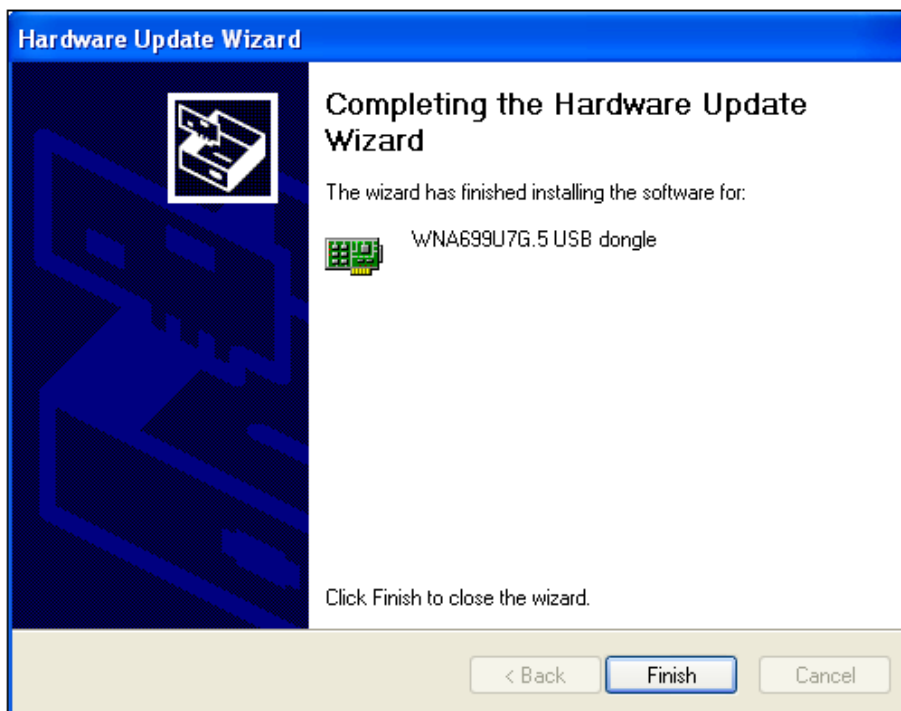
The drivers will then begin to install.



Step 8.2 The following warning will appear. Click the “**Continue Anyway**” button to continue the installation.



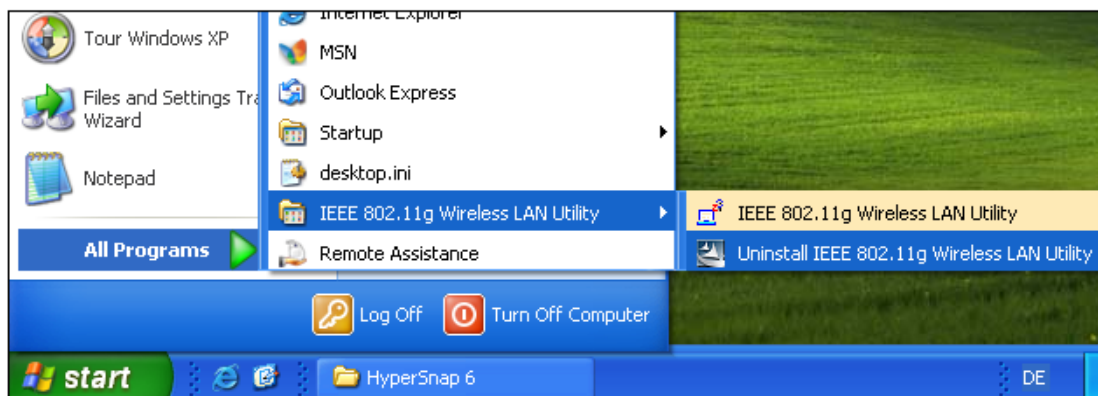
Step 8.3 After the installation has been completed, click “**Finish**” to exit the setup wizard.



Uninstall the Software and Driver

Uninstall the utility software and driver from your PC

Step 1 Choose **Start > All Programs > IEEE 802.11g Wireless LAN Utility**, and the page shown in the following figure appears. Then choose **Uninstall IEEE 802.11g Wireless LAN Utility** from the menu.



Step 2 Follow the **Install Shield Wizard** to uninstall the utility software and driver from your PC.

Configuration

The WLAN-LCUSB-01 can be configured by its utility in Windows 2000, Windows XP or Windows Vista. This chapter describes how to configure your wireless adapter for wireless connectivity with trustable data security encryption features. The configuration procedures in Windows 2000, Windows Vista and Windows XP are similar.



Note:

If your operation system (OS) is Windows XP, you can use Windows XP to configure the wireless network settings. (To use this function, you must upgrade the OS with SP2).

Checking the Utility

After completing the adapter's driver, choose **Start > All Programs > IEEE 802.11g Wireless LAN Utility >**

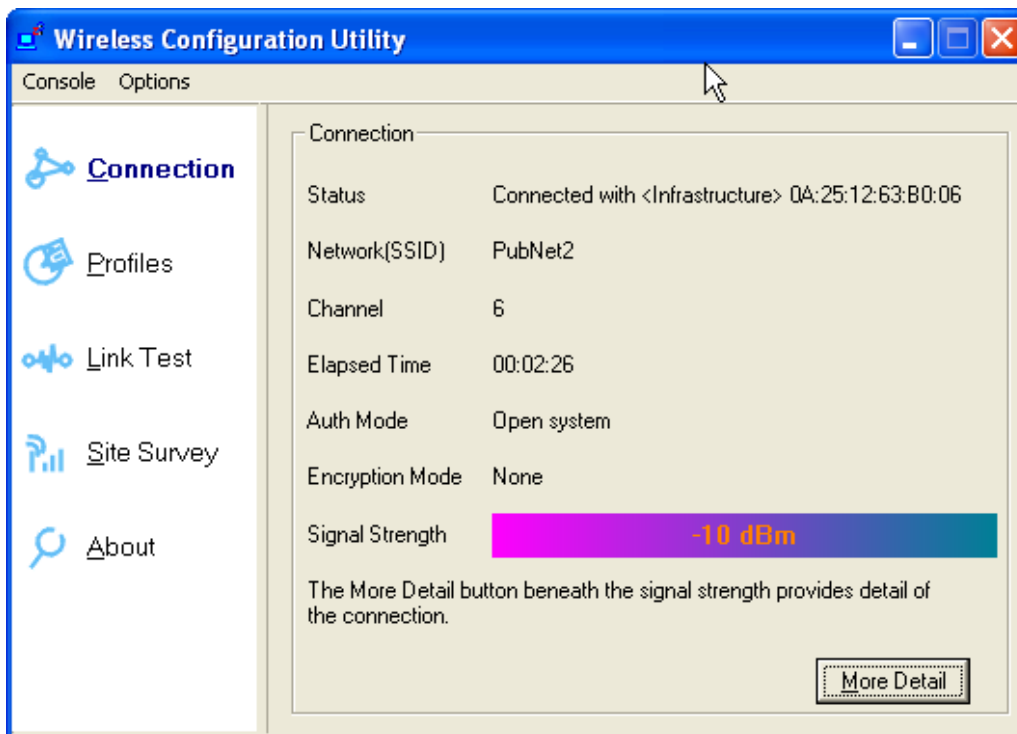
to run the utility. Then the adapter's icon  will appear in the system tray.

If you want to configure the wireless network settings in Windows XP, right-click the icon  in the system tray.



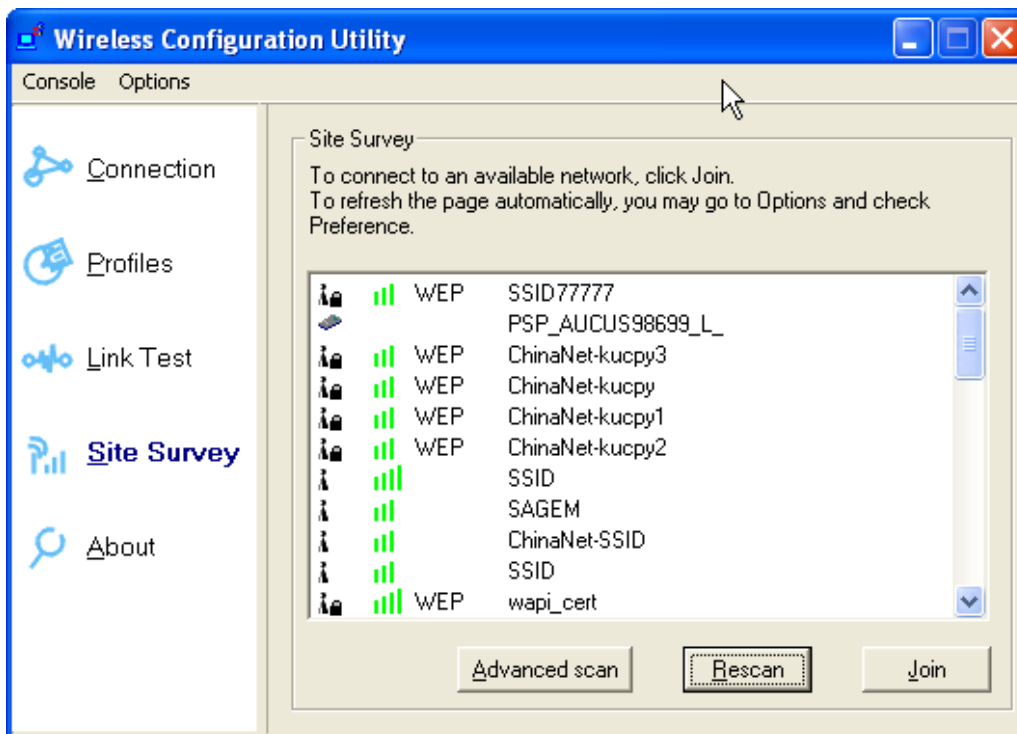
Then choose **Use Windows To Config Adapters** to switch the utility.

Connection status page of Main User Interface (UI)



This page shows the connection status information, such as SSID, Channel and so on.

Site Survey Page of Main UI

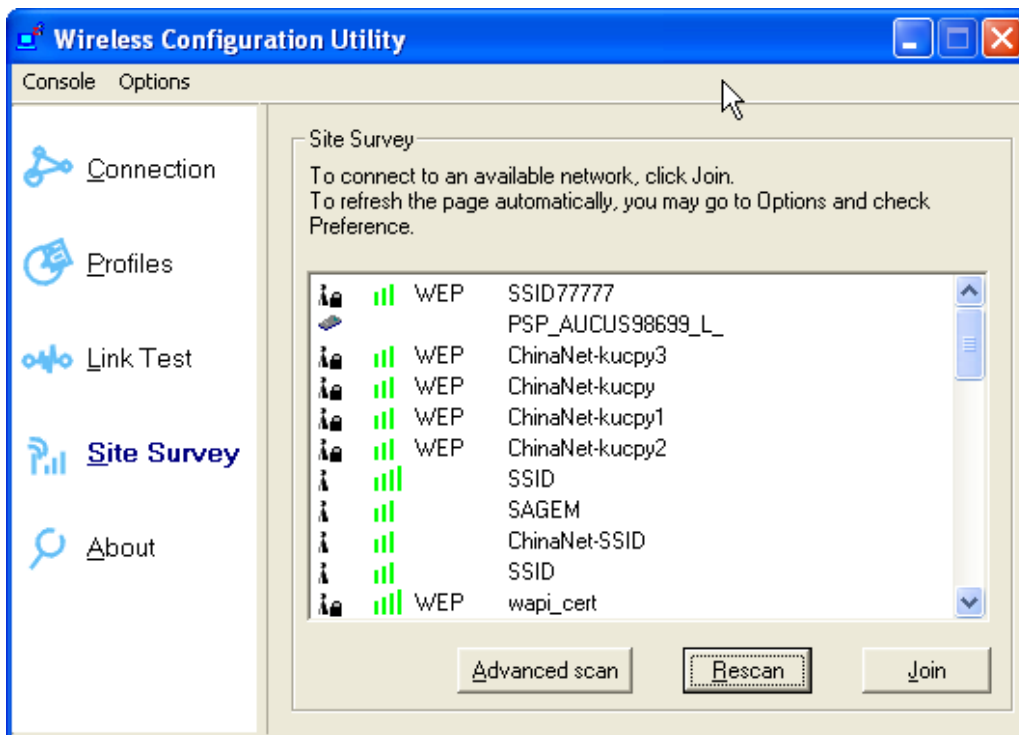


This page shows Site Survey information. Users may select one AP to connect to.

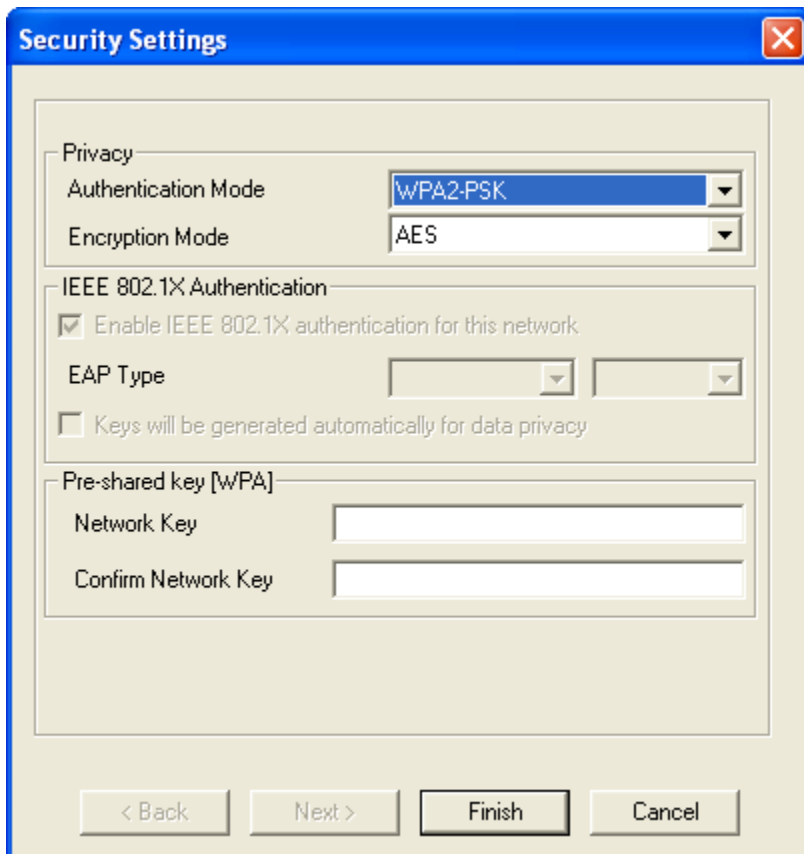
The Button “Advanced Scan” will show more information as in the following picture:

Advanced Scan Information						
ESSID	Channel	Security	Signal	BSSID	Network Type	Supported Rates
wapi_cert	1	WEP	-52 dBm	0A:1A:7F:08:07:44	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
DefaultNet_AUTO	3	NO	-65 dBm	06:1C:F0:66:2C:F2	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
DefaultNet	3	NO	-71 dBm	06:25:12:63:AF:CC	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
Factory	6	NO	-52 dBm	06:1F:6F:33:F9:86	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
PubNet_OPEN	6	NO	-64 dBm	0A:1E:E3:11:22:33	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
ChinaNet-one	6	WPA	-75 dBm	00:1F:A3:68:ED:BA	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
ZXDSL831L	6	NO	-78 dBm	00:0C:43:30:52:88	Infrastructure	1/2/5.5/11 Mbps
vvv	8	WEP	-80 dBm	00:1E:E3:E6:6C:30	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54/300 Mbps
ChinaNet-WoWo	9	NO	-38 dBm	00:74:04:17:11:12	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
WMASTERS	9	NO	-30 dBm	00:E0:4C:81:86:D1	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
Free Public WiFi	10	NO	N/A	82:3C:3A:38:C4:31	Adhoc	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
PubNet	11	WPA2	-80 dBm	06:25:12:63:AF:CA	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
ChinaNet-SSID	11	WEP	-49 dBm	00:1F:8F:C0:01:50	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
PubNet	11	WPA2	-46 dBm	06:25:12:63:AF:B1	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
PubNet2	11	NO	-62 dBm	0A:25:12:63:AF:B1	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
ASMAX_BR615n	11	WEP	-40 dBm	00:0C:43:30:52:78	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54/300 Mbps
ZSYH	11	NO	-68 dBm	00:22:B0:91:99:29	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
PubNet2	11	NO	-78 dBm	0A:25:12:63:AF:D1	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
PubNet2	11	NO	-67 dBm	0A:25:12:63:AF:CA	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
PubNet2	11	NO	-78 dBm	0A:25:12:63:B0:19	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps
PubNet2	11	NO	-78 dBm	0A:25:12:63:B0:24	Infrastructure	1/2/5.5/11/6/9/12/18/24/36/48/54 Mbps

The “Rescan” Button will refresh information in the list.



To select an AP, click the “Join” button.



The image shows a 'Security Settings' dialog box with a blue title bar and a close button (X) in the top right corner. The dialog is divided into three main sections. The first section, titled 'Privacy', contains two dropdown menus: 'Authentication Mode' set to 'WPA2-PSK' and 'Encryption Mode' set to 'AES'. The second section, titled 'IEEE 802.1X Authentication', has a checked checkbox 'Enable IEEE 802.1X authentication for this network', followed by two empty dropdown menus for 'EAP Type', and an unchecked checkbox 'Keys will be generated automatically for data privacy'. The third section, titled 'Pre-shared key [WPA]', contains two empty text input fields labeled 'Network Key' and 'Confirm Network Key'. At the bottom of the dialog are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

Security Settings

Privacy

Authentication Mode: WPA2-PSK

Encryption Mode: AES

IEEE 802.1X Authentication

☒ Enable IEEE 802.1X authentication for this network

EAP Type: [] []

☐ Keys will be generated automatically for data privacy

Pre-shared key [WPA]

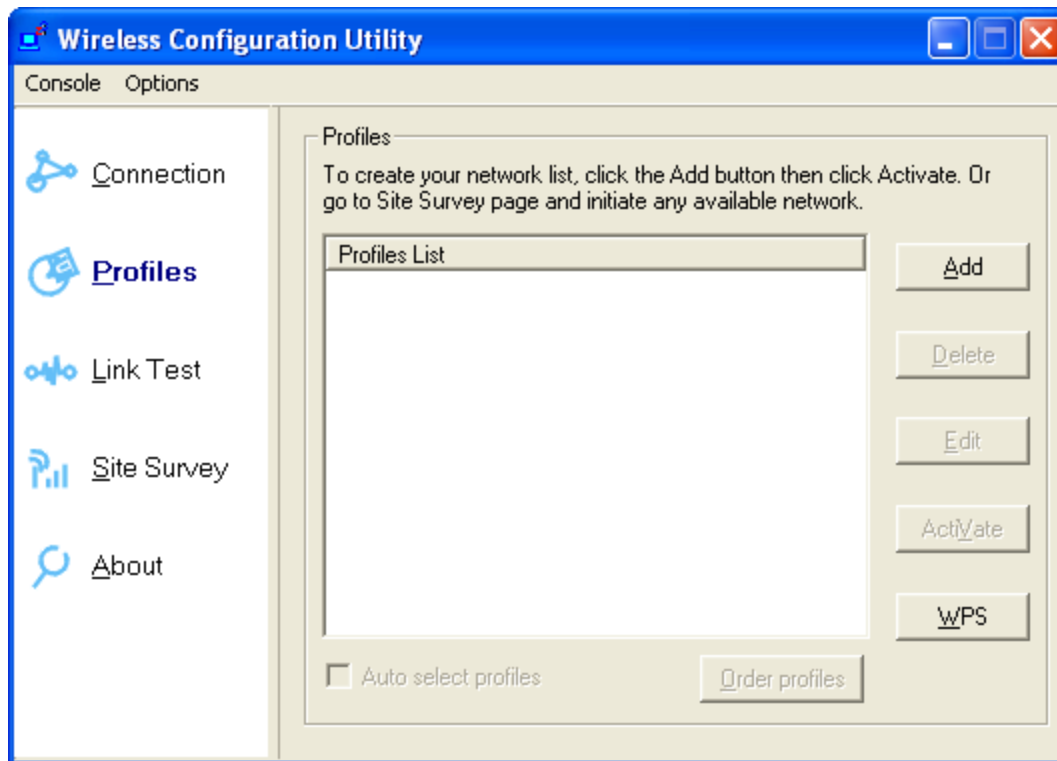
Network Key: []

Confirm Network Key: []

< Back Next > Finish Cancel

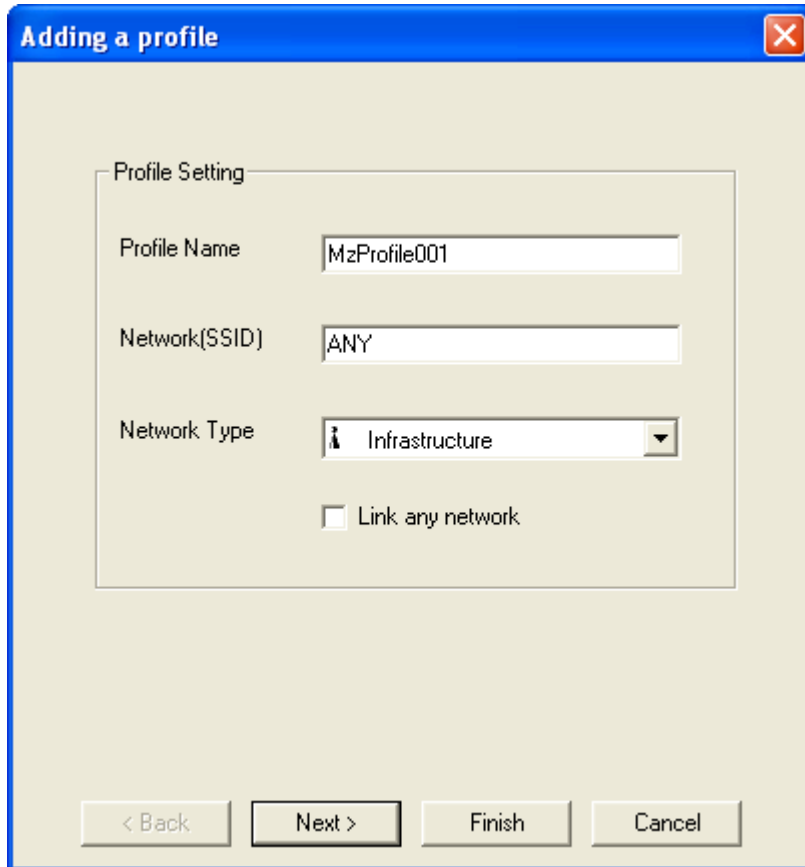
After selecting an AP, the user must choose Authentication Mode, Encryption Mode and Network Key to connect to the AP selected. After those fields are filled in, click the **"Finish"** button to start connect progress.

Profile Configuration Page of Main UI



On this page, the user can Add, Delete, Edit, Activate a Profile and use WPS to Connect an AP.

Add a Profile



Adding a profile

Profile Setting

Profile Name

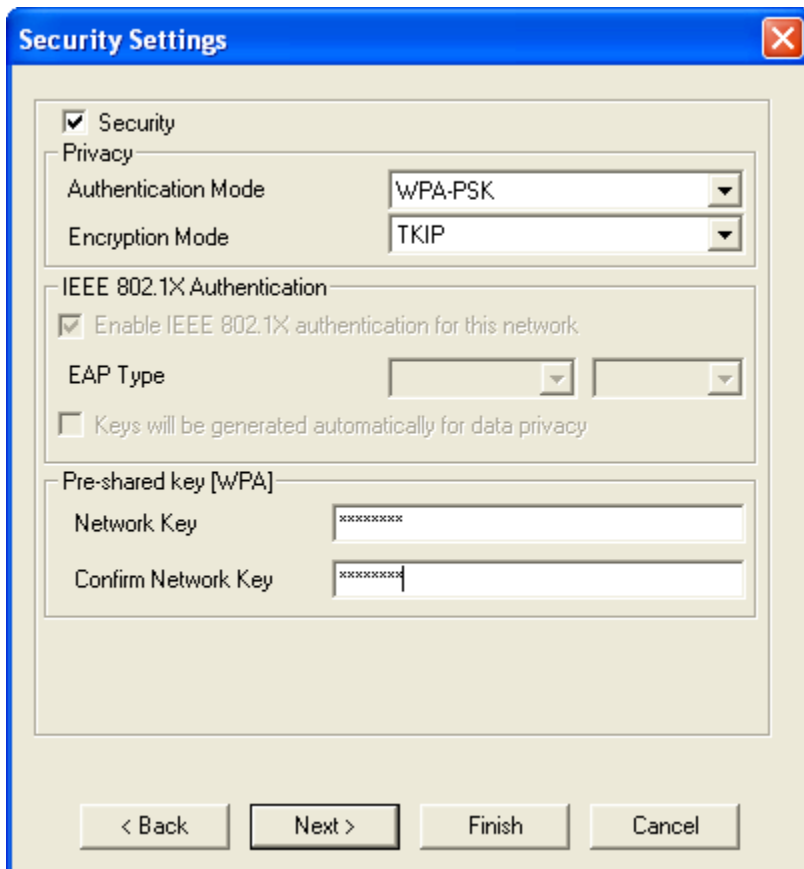
Network(SSID)

Network Type

☐ Link any network

< Back Next > Finish Cancel

Enter Profile Name, SSID and select Network Type on this page and click the **"Next"** button.



The image shows a 'Security Settings' dialog box with a blue title bar and a close button (X) in the top right corner. The dialog is divided into several sections. The first section, 'Privacy', contains a checked checkbox for 'Security', a dropdown menu for 'Authentication Mode' set to 'WPA-PSK', and another dropdown menu for 'Encryption Mode' set to 'TKIP'. The second section, 'IEEE 802.1X Authentication', contains a checked checkbox for 'Enable IEEE 802.1X authentication for this network', two empty dropdown menus for 'EAP Type', and an unchecked checkbox for 'Keys will be generated automatically for data privacy'. The third section, 'Pre-shared key [WPA]', contains two text input fields: 'Network Key' and 'Confirm Network Key', both filled with a series of asterisks. At the bottom of the dialog are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

Select Authentication Mode, Encryption Mode and enter Network Key in on this page and click the **"Next"** button (if this information is not required, just use the default configurations, then click the **"Finish"** button to start connect).

TCP/IP Settings [X]

☒ Change current IP setting:

☐ Obtain an IP Address automatically:

☐ Specify IP Address:

Use the following IP Address: —

IP Address: 0 . 0 . 0 . 0

Subnet Mask: 0 . 0 . 0 . 0

Default Gateway: . . .

Use the following DNS Server addresses: —

DNS Server 1: . . .

DNS Server 2: . . .

< Back Next > Finish Cancel

Select to Specify IP Address or Obtain an IP Address automatically.

TCP/IP Settings

☒ Change current IP setting:
☐ Obtain an IP Address automatically:
☒ Specify IP Address:

Use the following IP Address:

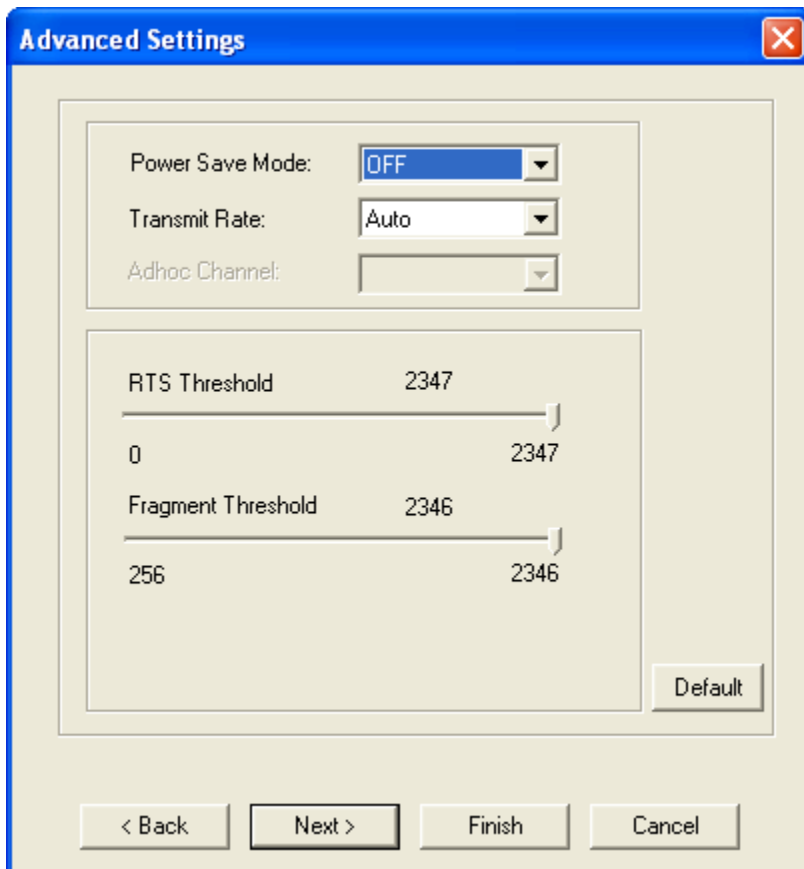
IP Address: 192 . 168 . 1 . 5
Subnet Mask: 255 . 255 . 255 . 0
Default Gateway: | . . .

Use the following DNS Server addresses:

DNS Server 1: . . .
DNS Server 2: . . .

< Back Next > Finish Cancel

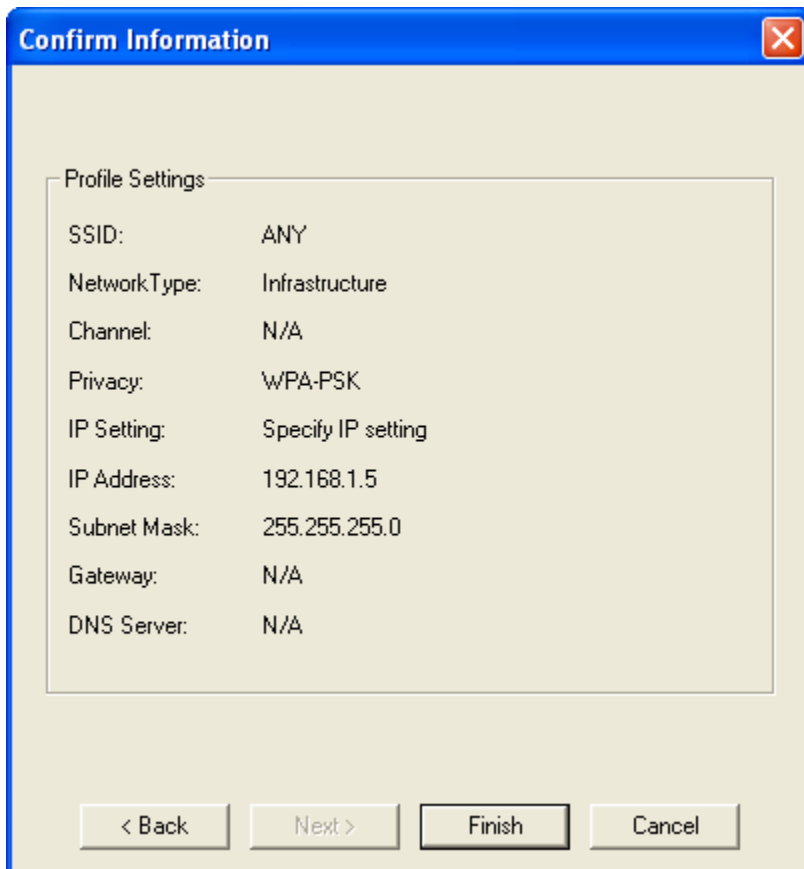
If selecting an IP address, fill in the required information. Check with your network administrator for IP address information.



The image shows a software window titled "Advanced Settings" with a standard Windows-style title bar (blue background, close button). The window contains several settings:

- Power Save Mode:** A dropdown menu set to "OFF".
- Transmit Rate:** A dropdown menu set to "Auto".
- Adhoc Channel:** An empty dropdown menu.
- RTS Threshold:** A slider control. The value is set to 2347. The range is from 0 to 2347.
- Fragment Threshold:** A slider control. The value is set to 2346. The range is from 256 to 2346.
- Default:** A button located at the bottom right of the settings area.
- Navigation Buttons:** At the bottom of the window are four buttons: "< Back", "Next >", "Finish", and "Cancel".

For advance settings, the Default is recommended. Click "**Next**" to continue.



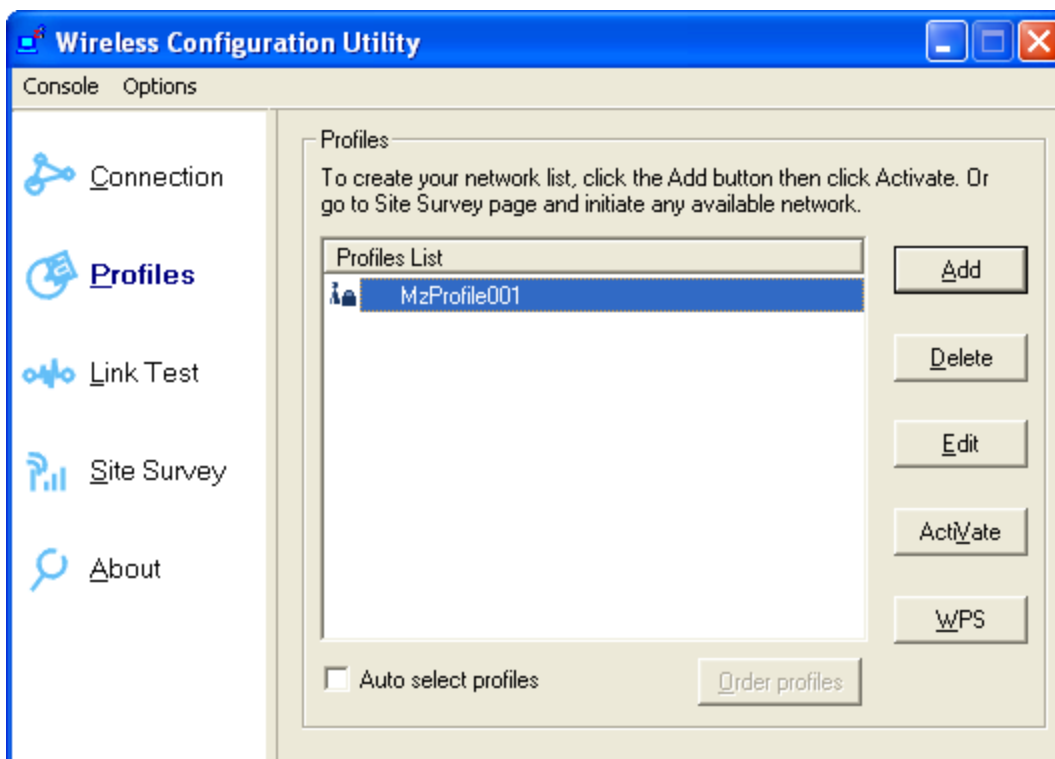
Confirm Information

Profile Settings

SSID:	ANY
NetworkType:	Infrastructure
Channel:	N/A
Privacy:	WPA-PSK
IP Setting:	Specify IP setting
IP Address:	192.168.1.5
Subnet Mask:	255.255.255.0
Gateway:	N/A
DNS Server:	N/A

< Back Next > **Finish** Cancel

Click "**Finish**" to return to the Profile Configuration page of Main UI, A profile has been created.



Wireless Configuration Utility

Console Options

- Connection
- Profiles**
- Link Test
- Site Survey
- About

Profiles

To create your network list, click the Add button then click Activate. Or go to Site Survey page and initiate any available network.

Profiles List	
MzProfile001	<input type="button" value="Add"/> <input type="button" value="Delete"/> <input type="button" value="Edit"/> <input type="button" value="Activate"/> <input type="button" value="WPS"/>

☐ Auto select profiles

Additional options on this page include:

Delete a Profile:

Please select a profile and click the “**Delete**” button. The Profile will be deleted.

Edit a Profile:

Please select a profile and click the “**Edit**” button. You can then edit the parameters of the profile.

Activate a Profile:

Please select a profile and click the “**ActiVate**” button. This will activate the selected profile.

WPS:

Please refer to the next section “**WPS Configuration**”

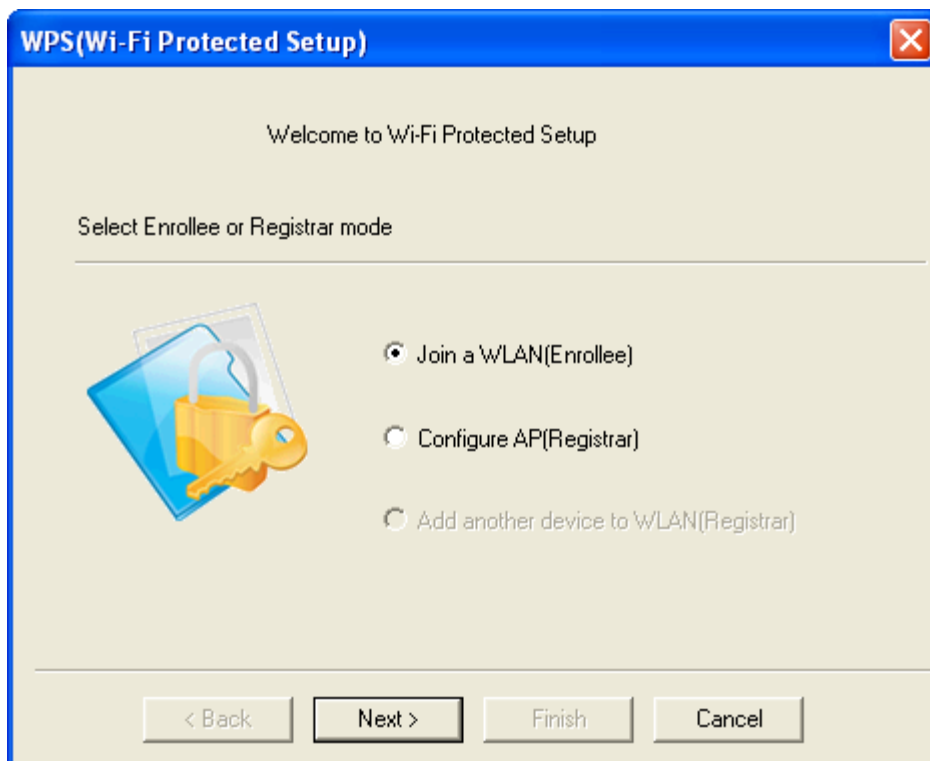
WPS Configuration

WPS Configuration has three methods, PBC, PIN code (Enrollee, Registrar);

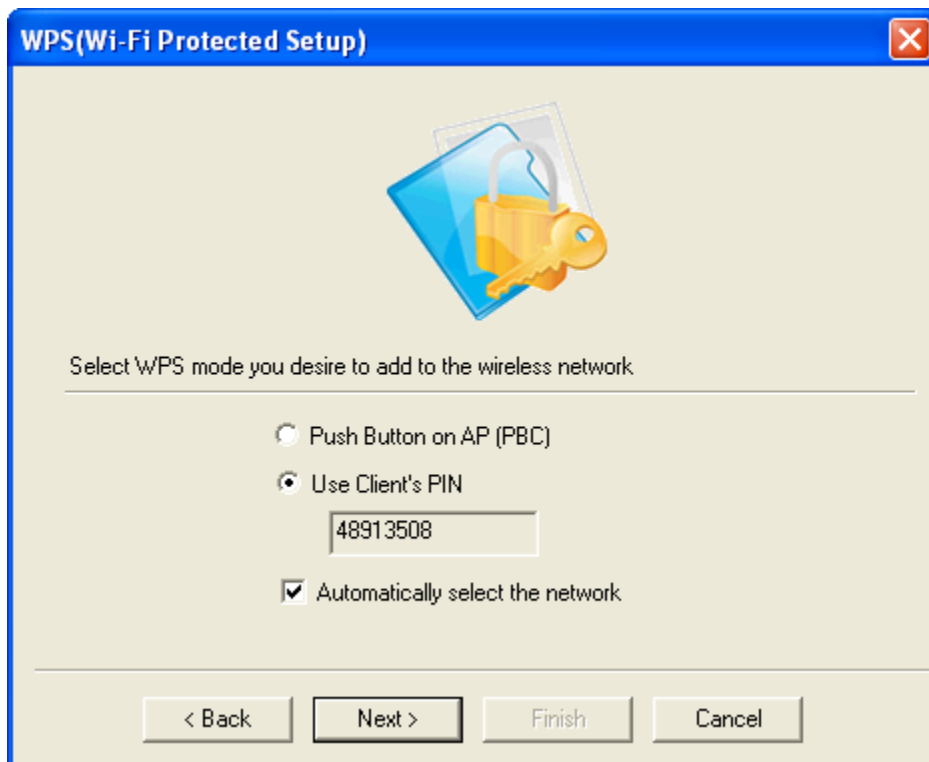


Select WPS (Wi-Fi Protected Setup)

For Enrollee setup, select **"Join a WLAN(Enrollee)"** and click the **"Next"** button.



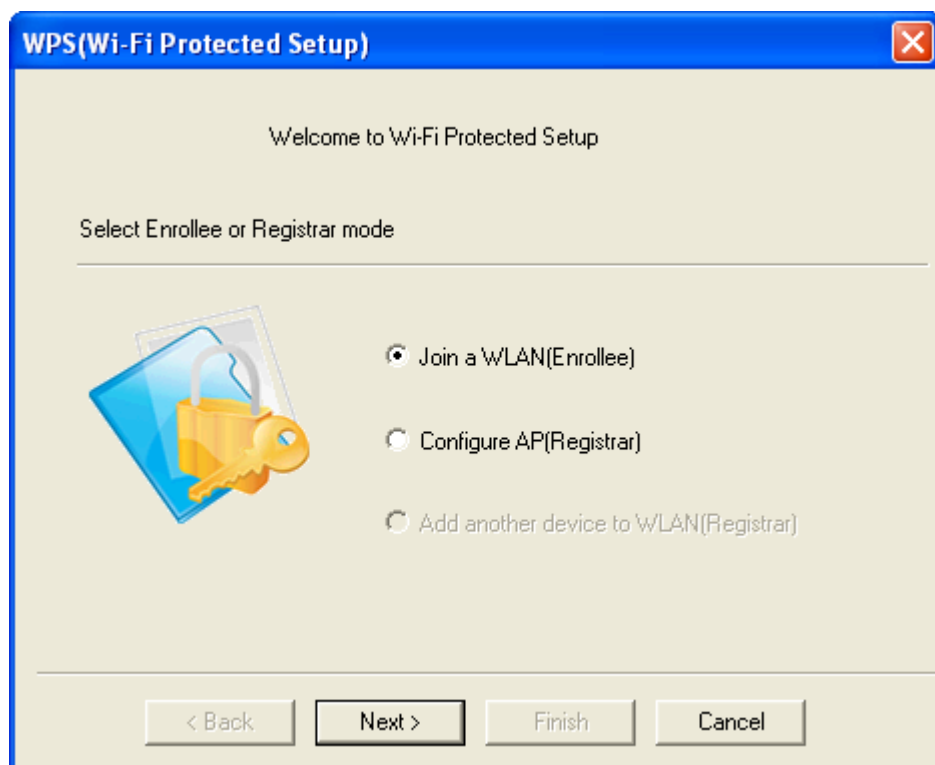
If PBC mode is selected, click **"Next"**. The user must now press the AP's WPS button within 2 minutes. This will start the normal WPS process. If Client PIN mode is selected, remember the PIN code (48913508). Click the **"Next"** button to continue.



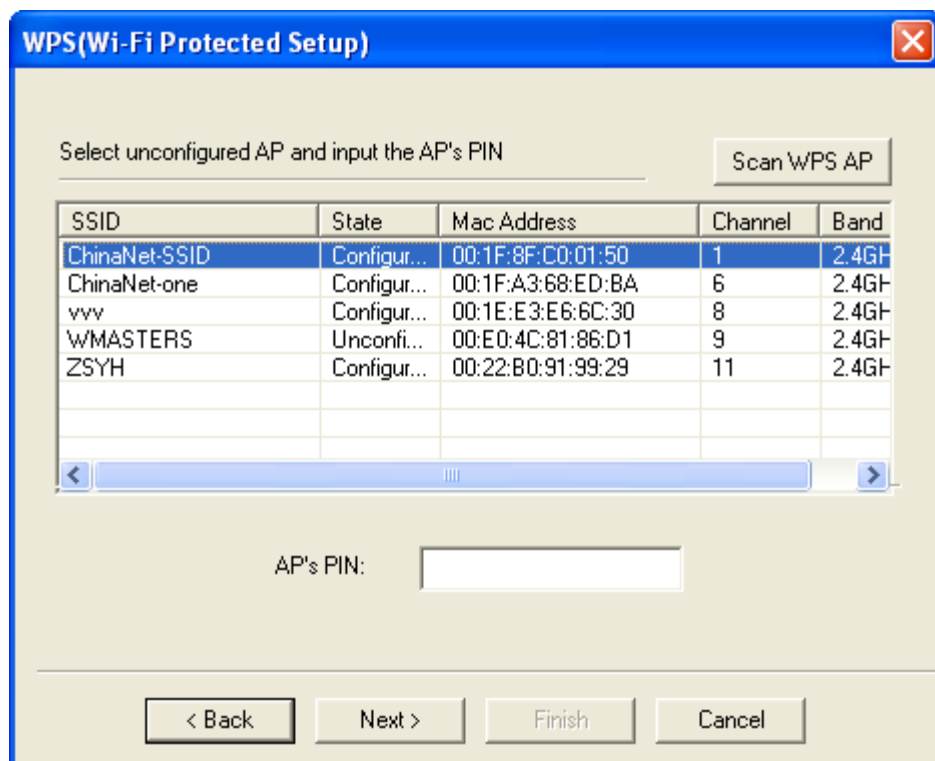
User must input the PIN Code into the AP within 2 minutes. The WPS process will be start normally.



If user selects Configure AP(Registrar) mode:



Please select the AP and input AP's PIN code in the "AP's PIN:" field and click the **"Next"** button.



WPS(Wi-Fi Protected Setup)

Network Settings

Enter the network settings which your network will be configured to.

SSID: ChinaNet-SSID

Auth Mode: WPA-PSK Encryption Mode: TKIP


Network Key: 2CAED9C8C9B0FD2783F8F4B6B8610DC8

☒ Show Password

< Back Next > Finish Cancel

On this page the user can configure the AP's information. Then click the "**Next**" button.

WPS(Wi-Fi Protected Setup)



Searching for WPS Network...

Current PIN: 78315525

< Back Next > Finish Cancel

The WPS Progress will start.

Appendix A Glossary

802.11n - 802.11n builds upon previous 802.11 standards by adding MIMO (multiple-input multiple-output). MIMO uses multiple transmitter and receiver antennas to allow for increased data throughput via spatial multiplexing and increased range by exploiting the spatial diversity, perhaps through coding schemes like Alamouti coding. The Enhanced Wireless Consortium (EWC) was formed to help accelerate the IEEE 802.11n development process and promote a technology specification for interoperability of next-generation wireless local area networking (WLAN) products.

802.11b - The 802.11b standard specifies a wireless networking at 11 Mbps using direct-sequence spread-spectrum (DSSS) technology and operating in the unlicensed radio spectrum at 2.4GHz, and WEP encryption for security. 802.11b networks are also referred to as Wi-Fi networks.

802.11g - Specification for wireless networking at 54 Mbps using direct-sequence spread-spectrum (DSSS) technology, using OFDM modulation and operating in the unlicensed radio spectrum at 2.4GHz, and backward compatibility with IEEE 802.11b devices, and WEP encryption for security.

Ad-hoc Network - An ad-hoc network is a group of PCs, each with a wireless adapter, connected as an independent 802.11 wireless LAN. Ad-hoc wireless PCs operate on a peer-to-peer basis, communicating directly with each other without the use of an access point. Ad-hoc mode is also referred to as an Independent Basic Service Set (IBSS) or as peer-to-peer mode, and is useful at a departmental scale or SOHO operation.

DSSS (Direct-Sequence Spread Spectrum) - DSSS generates a redundant bit pattern for all data transmitted. This bit pattern is called a chip (or chipping code). Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the receiver can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers. However, to an intended receiver (i.e. another wireless LAN endpoint), the DSSS signal is recognized as the only valid signal, and interference is inherently rejected (ignored).

FHSS (Frequency Hopping Spread Spectrum) - FHSS continuously changes (hops) the carrier frequency of a conventional carrier several times per second according to a pseudo-random set of channels. Because a fixed frequency is not used, and only the transmitter and receiver know the hop patterns, interception of FHSS is extremely difficult.

Infrastructure Network - An infrastructure network is a group of PCs or other devices, each with a wireless adapter, connected as an 802.11 wireless LAN. In infrastructure mode, the wireless devices communicate with each other and to a wired network by first going through an access point. An infrastructure wireless network connected to a wired network is referred to as a Basic Service Set (BSS). A set of two or more BSS in a single network is referred to as an Extended Service Set (ESS). Infrastructure mode is useful at a corporation scale, or when it is necessary to connect the wired and wireless networks.

Spread Spectrum - Spread Spectrum technology is a wideband radio frequency technique.

Appendix B Country Channel List

The following table displays the country channel list, channel classification, and range.

Country	Classification	Range
Argentina	0	CH1 ~ 11
Australia	1	CH1 ~ 13
Austria	1	CH1 ~ 13
Bahrain	1	CH1 ~ 13
Belarus	1	CH1 ~ 13
Belgium	1	CH1 ~ 13
Bolivia	1	CH1 ~ 13
Brazil	0	CH1 ~ 11
Bulgaria	1	CH1 ~ 13
Canada	0	CH1 ~ 11
Chile	1	CH1 ~ 13
China	1	CH1 ~ 13
Colombia	0	CH1 ~ 11
Costa Rica	1	CH1 ~ 13
Croatia	1	CH1 ~ 13
Cyprus	1	CH1 ~ 13
Czech Republic	1	CH1 ~ 13
Denmark	1	CH1 ~ 13
Ecuador	1	CH1 ~ 13
Egypt	1	CH1 ~ 13
Estonia	1	CH1 ~ 13
Finland	1	CH1 ~ 13
France	3	CH10 ~ 13
France2	1	CH1 ~ 13
Germany	1	CH1 ~ 13
Greece	1	CH1 ~ 13
Hong Kong	1	CH1 ~ 13
Hungary	1	CH1 ~ 13
Iceland	1	CH1 ~ 13
India	1	CH1 ~ 13
Indonesia	1	CH1 ~ 13
Ireland	1	CH1 ~ 13
Israel	6	CH3 ~ 9
Italy	1	CH1 ~ 13
Japan	5	CH1 ~ 14
Japan2	4	CH14 ~ 14
Japan3	1	CH1 ~ 13
Jordan	3	CH10 ~ 13
Kuwait	1	CH1 ~ 13
Latvia	1	CH1 ~ 13
Lebanon	1	CH1 ~ 13
Latvia	1	CH1 ~ 13
Lebanon	1	CH1 ~ 13
Liechtenstein	1	CH1 ~ 13
Lithuania	1	CH1 ~ 13
Luxembourg	1	CH1 ~ 13
Macedonia	1	CH1 ~ 13
Malaysia	1	CH1 ~ 13

Country	Classification	Range
Mexico	0	CH1 ~ 11
Morocco	1	CH1 ~ 13
Netherlands	1	CH1 ~ 13
New Zealand	1	CH1 ~ 13
Nigeria	1	CH1 ~ 13
Norway	1	CH1 ~ 13
Panama	1	CH1 ~ 13
Paraguay	1	CH1 ~ 13
Peru	1	CH1 ~ 13
Philippines	1	CH1 ~ 13
Poland	1	CH1 ~ 13
Portugal	1	CH1 ~ 13
Puerto Rico	1	CH1 ~ 13
Romania	1	CH1 ~ 13
Russia	1	CH1 ~ 13
Saudi Arabia	1	CH1 ~ 13
Singapore	1	CH1 ~ 13
Slovakia	1	CH1 ~ 13
Slovenia	1	CH1 ~ 13
South Africa	1	CH1 ~ 13
South Korea	1	CH1 ~ 13
Spain	2	CH10 ~ 11
Sweden	1	CH1 ~ 13
Switzerland	1	CH1 ~ 13
Taiwan	0	CH1 ~ 11
Thailand	1	CH1 ~ 13
Turkey	1	CH1 ~ 13
United Arab Emirates	1	CH1 ~ 13
United Kingdom	1	CH1 ~ 13
United States of America	0	CH1 ~ 11
Uruguay	1	CH1 ~ 13
Venezuela	1	CH1 ~ 13
Yugoslavia	0	CH1 ~ 11

FCC Information

FCC Information

This equipment complies with CFR 47, Part 15.19 of the FCC rules. Operation of the equipment is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received; including interference that may cause undesired operation.

This device must not be co-located or operating in conjunction with any other antenna or transmitter

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Federal Communications Commission (FCC) Requirements, Part 15

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Regulatory information / Disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution of the connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government

CAUTION: To maintain compliance with FCC's RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use only the supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

MPE Statement (Safety Information)

Your device contains a low power transmitter. When device is transmitted it sends out Radio Frequency (RF) signal.

Safety Information

In order to maintain compliance with the FCC RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use only with supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.